nation source **248** of the reference station **230**, using a camera **250** built into the image processing station **230**, the camera **201**, or any other suitable image capture device. Reference object information may be supplied (for example, using a wireless interface **252**) to a photography-capable device such as the telephone **201**, stored in the correction information repository **246**, or both, and may be used by the image processing software **242** to perform color correction in a way similar to that described above.

[0027] The system **200** may also include a self-contained reference information capture device **270**, comprising an illuminator **272** and an imaging sensor **274**, a chroma sensor **275**, or both. The reference information capture device **270** may also comprise a processor **276**, memory **278**, data **280**, programs **282**, and an interface **284**, which may suitably be a wireless interface. The reference information capture device **270** can be used to illuminate an object and sense the color of the object, providing color information to, for example, the reference station **230** or the telephone **201**. The reference information capture device **270** can be used to capture true color information for reference objects conveniently, and a user can easily illuminate an object and perform color capture on the object under the known illumination before or after taking a photograph. A user might, for example, photograph a scene, observe that the color cast of the scene is unsatisfactory, and choose an object appearing in the scene to use as a reference object. The true color information can be supplied to any device used to process a captured scene image to provide a corrected image (by identifying the reference object within the captured image, computing a color transform needed to color correct the image of the reference object, and applying the color correction to every pixel within the captured scene image), and can also be stored for later use. In one approach, the device **270** may use the imaging sensor **274** to capture an image of the reference object, which may then be processed to extract color balance information. In another approach, the device **270** may use the chroma sensor **275** to measure color values of the reference object and process the measurements to determine and store color balance information. Any other suitable approach may be used to determine the reflectance of the reference object. This information can be stored in the memory **278** and provided to any desired device—for example, using the interface **284**.

[0028] Any number of objects may be used as reference objects, but some particularly useful choices might be clothing. For example, a user might capture reference images of favorite clothing items, such as shirts or hats, and wearing such items in photographed scenes would make it easy to perform nearly automatic color correction. A photography-enabled device could be made aware that specified clothing items would appear in a scene, and could identify the specified items and based color correction on the known color of the items. A device such as the reference image capture device **270** would be particularly suitable for capture of such reference images, being configured to both provide a known illumination and capture color information. A device such as the device **270** would suitably be of a size to be handheld and easily operated by a user. In addition, the device **270** may, as noted above, have its own image capture capabilities, and these capabilities may be used to capture a scene. The device **270** may also use its reference object color balance determination capabilities to perform color correction for its own scene images.

[0029] FIG. **3** illustrates a process **300** according to an embodiment of the present invention. At block **302**, a reference object is illuminated with a known illumination and at block **304** an image of the reference object is captured. At block **306**, color balance of the reference object is measured based on the captured reference object image and the known illumination. Color balance information under known illumination indicates the reflectance of the reference object, so that color balance information and reflectance information are provided by the measurement. At block **308**, reference object information is stored, such as locally in a camera or other photography capable device, at an image processing station, at a central repository, or at any other suitable location or combination of locations. At block **310**, a scene image is captured in which the reference object appears. At block **312**, the location of the reference object in the scene image is identified and at block **314**, a chromatic transform is computed based on the difference between the known color balance of the reference object and the color balance of the reference object as it appears in the scene. At block **316**, the color transform is applied to the scene image, suitably applying to each pixel of the image the color transform needed to correct the image of the reference object. At block **318**, the scene image is stored or otherwise transferred or made available for use.

[0030] Referring again to FIGS. **1** and **2**, at least one of the programs stored in the various memories is assumed to include a set of program instructions that, when executed by the associated processor, enable the device to operate in accordance with the exemplary embodiments of this invention, as detailed above. In these regards the exemplary embodiments of this invention may be implemented at least in part by computer software stored in the memories, with the software being executable by a processor. Alternatively or in addition, embodiments may be implemented by hardware, or by a combination of tangibly stored software and hardware (and tangibly stored firmware). Electronic devices implementing these aspects of the invention need not be the entire devices as depicted at FIG. **1** or FIG. **2** or may be one or more components of same such as the above described tangibly stored software, hardware, firmware and data processor or a system on a chip SOC or an application specific integrated circuit ASIC.

[0031] In general, the various embodiments of the telephone **201** or the reference image capture device **270** can include, but are not limited to personal portable digital devices having wireless communication capabilities, including but not limited to cellular telephones, navigation devices, laptop/palmtop/tablet computers, digital cameras and music devices, and Internet appliances.

[0032] Various embodiments of the computer readable memories include any data storage technology type which is suitable to the local technical environment, including but not limited to semiconductor based memory devices, magnetic memory devices and systems, optical memory devices and systems, fixed memory, removable memory, disc memory, flash memory, DRAM, SRAM, EEPROM and the like. Various embodiments of the processors include but are not limited to general purpose computers, special purpose computers, microprocessors, digital signal processors (DSPs) and multi-core processors.

[0033] Electronic devices implementing these aspects of the invention need not be the entire devices as depicted at FIG. **1** or FIG. **2** or may be one or more components of same such